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ABSTRACT

The report describes an experiment for increasing retention of foreign language vocabulary by using multiple intelligence approaches and memory enhancement tools. The targeted population was approximately 100 seventh- and eighth-grade Latin students. Student difficulty with vocabulary retention had been ascribed to the teacher's emphasis on verbal-linguistic teaching methods, students' lack of study skills, and varying degrees of student motivation. Review of solution strategies suggested by experts in the fields of both memory improvement and multiple intelligences resulted in a variety of interventions. Students were instructed using methods that introduce several multiple intelligence strategies and several memory improvement techniques, and were directly involved in composition and design of study materials in a cooperative learning context. The teacher de-emphasized verbal-linguistic approaches in favor of a more comprehensive approach. Post-intervention data showed an increase in scores on bi-weekly vocabulary quizzes, increase in awareness of memory techniques for foreign language vocabulary mastery, and awareness of varied learning styles in both teacher and students. Appended materials include the learning styles inventory and answer key, parent permission letter, vocabulary quizzes, journal entry forms, and grade 8 vocabulary quiz survey. Contains 25 references. (Author/MSE)

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USING MULTIPLE INTELLIGENCES TO IMPROVE RETENTION IN FOREIGN LANGUAGE VOCABULARY STUDY

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An Action Research Project Submitted to the Graduate Faculty of the School of Education in Partial Fulfillment of the Requirements for the Degree of Master of Arts in Teaching and Leadership

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ABSTRACT

This report describes a program for increasing retention of foreign language vocabulary by utilizing multiple intelligence approaches and memory enhancement tools. The targeted population consists of approximately 100 seventh and eighth grade Latin students in an upper middle class Illinois community. The problem of students' low scores on Latin vocabulary quizzes have been documented from records kept from previous years, teacher-made and criterion-referenced tests.

Analysis of probable cause data reveals that the teacher's emphasis on verbal-linguistic teaching methodologies, lack of student study skills regarding memorization, and varying degrees of student motivation may contribute to the problem. Other factors impacting the situation might include inadequate organizational and time-management skills, inadequate preparation time, and spelling errors.

A review of solution strategies suggested by experts in both the fields of memory improvement and multiple intelligences, combined with an analysis of the problem setting has resulted in the selection of a variety of interventions. Students will be instructed in methods introducing several new multiple intelligence strategies. They will be taught memory improvement techniques and will be directly involved in the composition and design of study materials in a cooperative learning setting. The teacher will attempt to de-emphasize verbal-linguistic approaches in favor of establishing a more well-rounded climate for learning.

Post intervention data indicated an increase in the scores of bi-weekly vocabulary quizzes, an increase in the awareness of memory techniques for foreign language vocabulary mastery, and an awareness of a variety of learning styles in both the teacher and the students.

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CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of the Problem

The students of the targeted seventh and eighth grade Latin classes exhibit poor quiz scores on vocabulary tests -- a problem that interferes with other aspects of foreign language learning. Evidence for the existence of the problem includes teacher observations, students' test scores, and student questionnaires.

Immediate Problem Context

This research project will be undertaken at two middle schools within the same school unit district. They are located approximately 3 miles apart, in a northwest suburb of a Midwestern city.

Site A

This suburban middle school -- a beautiful building opened in 1992 -- consists of 883 students. The school population is made up of a majority of Whites, with a small number of other minorities such as Blacks, Hispanics, and Asians or Pacific Islanders. Figure 1 illustrates this cultural background of the site. Five percent of the student population come from low income families, which may include families on public aid, living in institutions for neglected or delinquent children, being supported in foster homes with public funds, or eligible to receive free or reduced price lunches. The remainder of the families are middle to upper-middle class. The attendance rate at Site A is 95.5%, with a student mobility rate of 5.9% and a 0% chronic truancy rate. The staff at Site A consists of 51 full time teachers and 8 part time teachers. There are 8 eighth grade

teachers, 8 seventh grade teachers, and 10 sixth grade teachers. The remainder of the faculty are considered Special Service or departmental teachers. The average number of years of experience among the faculty of the district is 15.6 years, and 72.2% have attained a master's degree or above (School Report Card, 1997).

The school consists of two eighth grade teams, two seventh grade teams, four sixth grade teams, and one special/gifted team. Teams consist of four teachers -- one in each of the four core subjects of mathematics, language arts, social studies, and science. Non-team members consist of teachers of arts and technology, home economics, health, foreign language, music, physical education, and special education.

All students at Site A, with the exception of special education students, are required to take a foreign language. Five languages are offered: Spanish, French, Latin, German, and Russian. The foreign language program consists of a 45 minute period daily for one semester in sixth grade, and a 45 minute period daily for both semesters in the seventh and eighth grades. Upon successful completion of this sequence, students may progress into the regular second year language courses at the secondary level.

Site B

This middle school consists of 890 students. Although the physical plant is older than that of Site A, recent renovations have made the school seem nearly new. Like Site A, the school population is similarly made up of a majority of Whites, with a small number of minorities. The only apparent difference in the ethnic population seems to be a slightly higher Hispanic and Asian/Pacific Islander population at Site A, which may be due to boundary sites within the district. Figure1 illustrates the ethnic distribution of Site B in comparison with Site A (School Report Card, 1997).

Low income families represent 4.4% of the school population at Site B. The attendance rate is 95.3%, the mobility rate is 5.0%, and the chronic truancy rate is 1.6% (School Report Card, 1997).

The staff of Site B consists of the same number of full time and part time teachers as the staff of Site A, a fact necessitated by the problem of several commuting teachers who regularly teach at both campuses. Great pains have been taken to have similar programs at each school, with similar team make-up and similar time schedules. The foreign language programs and the class specifications are also identical.

In surveying the data, it is apparent that the schools are very similar in their populations.

	Site A	**Site B**
Whites	86.10%	88.40%
Blacks	1.90%	2.00%
Hispanics	5.10%	4.70%
Asians/Pacific Islanders	6.80%	4.80%
Total Enrollment	883	890

Figure1. Racial/Ethnic Background and Total Enrollment at Sites A and B

The Surrounding Community

Both Site A and Site B are located in a community unit school district in a northwest suburb of a Midwestern state. The district encompasses a 72 square mile area which covers all or parts of 12 different villages or communities and which incorporates parts of three counties. An approximate population of 44,418, representing an increase of 19% since 1980, and a total of 14,385 households are estimated for the area. Whites comprise 98.3% of the district as a whole, with .2% Blacks, 1.3% Asians and .2% other minorities. Per capita income within the communities ranges from approximately $7000 in the far south and western portions of the district to $60,000 in the northern portions. The median price of homes also has a wide range -- from approximately $50,000 to over $500,000. The median age of residents in the district is 34.0 years (Village at a Glance, 1997).

Within the boundaries of the district lie eight elementary schools, two middle schools, and one high school, with a total enrollment of more than 7,800 students. Per pupil expenditures are estimated at $7,607, and the residents of this district are generally very positively disposed towards education. The District Mission Statement -- "To help each student pursue excellence in learning through caring schools" -- is well publicized in the area. The district is in the midst of several educational initiatives including technology training for all teachers, a strategic plan for school improvements, and an innovative professional growth program of staff development (School Report Card, 1997).

Education was an important topic of conversation within the district during the past school year. After two consecutive attempts at passing a school improvement referendum, a scaled-down version was finally passed in the spring of 1997. The passage of the referendum will enable the school district to build two new elementary schools and to build an addition onto Site A -- a building now only five years old. These additions and improvements at Site A will enable the student population there to grow by approximately 200 students. Although the district is relieved that the referendum has finally passed, it had been drastically cut back from the original recommendation that called for more extensive improvements to all the schools, and especially to the high school.

Another serious problem for the district came in the form of resignations of many of the administrative staff, including the Superintendent, Financial Director, and Superintendent of Curriculum. These resignations were precipitated by improprieties in the financial condition of the district, complicated by a mistake in the tax-collection process within the three counties. After spending most of the previous school year under the guidance of temporary co-superintendents, the district has recently hired a new superintendent with a strong background in financial matters. Due to these many problems, citizens have been critical of some district policies, and a strong taxpayers' group has formed within the town to keep an eye on financial dealings.

National Context of the Problem

The problem of remembering material read or learned has generated significant discussion both on the academic and the popular level. Virtually everyone has an opinion on how well or how poorly American students perform, whether comparisons are made to students of other countries or even to American students of a generation ago. Some evidence which might argue for a serious concern about student learning includes the observations of teachers themselves, and also those of employers who have found that graduating students need continuous review of even the most basic of skills. Another factor sure to add fuel to the fire is the decline on various objective tests, most notably the SAT (Sowell, 1993). Consequently, programs dealing with successful learning and memory improvement are flooding the market place. This problem of remembering is further complicated when the material to be learned is in a foreign language.

Although foreign language study plays a major role in requirements for many colleges, the success of students in being proficient in a second language can be variable. There has been some suggestion that the study of a foreign language should begin at the elementary levels, if not before, when brain activity is most susceptible to making the proper cerebral connections (Nash, 1997). In many areas, teachers at the middle school level, and more predominantly at the secondary level, are given the task of beginning a foreign language for students in a daily regimen. Vocabulary building is a primary activity of these preliminary ventures into the languages of other cultures. In spite of the fact that society has de-emphasized the printed word in favor of the spoken word or the computerized program, even more skills dealing with language learning will be needed (McGavin, 1990).

Whether the subject matter to be learned is in a foreign language or most any other academic pursuit, students' memories are always being called upon. Helping students retain what they learn in a classroom or from a book appears to be one of education's most pressing concerns. (Armstrong, 1994). All learning is, in fact, remembering.

With the additional emphasis on brain research and cognitive psychology in education, teachers are becoming more and more involved with not only the "what" -- the material or knowledge to be mastered -- but the "how" of the process of learning and remembering. Helped by the theories of Howard Gardner, memory training can be approached in a variety of ways (Armstrong, 1994). Gardner, by elaborating on his theories that there are from seven to nine different "intelligences" or styles of learning, has opened the door for teachers to become more actively involved in making their lessons cater to the myriad paths of student learning and remembering, resulting in a more invigorated and encouraging classroom environment. As foreign language study tends to be heavily verbal, Gardner's theories enable the teacher of the foreign language class to attempt to move beyond the verbal to employ a broader range of teaching tecnniques that better delve into the student mind to catch its attention. Nearly every subject matter, in fact, can be approached in at least seven different ways: logical/mathematical, verbal/linguistic, visual/spatial, bodily/kinesthetic, interpersonal, intrapersonal, and musical (Gardner, 1995).

As these learning techniques become more ingrained in the educational methodologies of teachers, perhaps some solutions to these perennial problems can be suggested. In the meantime, teachers and students alike continue the debate of how to teach and learn more effectively.

CHAPTER 2

PROBLEM DOCUMENTATION

Problem Evidence

Students of the targeted seventh and eighth grade Latin classes at both sites are required to take a vocabulary quiz on from 10 to 20 selected words every other week. These words represent basic Latin vocabulary and are affiliated with a story presented in each lesson of the textbook. In addition to these basic vocabulary quizzes, an additional quiz which covers all the material learned in the lesson -- both vocabulary and grammar points -- is given at the end of every chapter. The information displayed in Figure 2 below shows the comparison of grades on the basic vocabulary quiz with those of the comprehensive quiz for Site A. The targeted eighth grade class at Site A in the fall of 1996 was composed of 9 students of average to above-average ability. The scores below represent the class average grade, given in a percentage form.

	Vocabulary Scores	**Comprehension Scores**
Lesson 1	57.10%	78.10%
Lesson 2	71.30%	74.20%
Lesson 3	64.80%	76.60%
Lesson 4	73.80%	77.70%

Figure 2

Comparison of Vocabulary and Comprehension Quizzes of Eighth Graders at Site A in Fall, 1996

The scores indicate that the vocabulary quizzes tend to be from 2.9 to 21 points lower than the scores for the comprehensive quizzes. It is to be noted that the material covered on the vocabulary quizzes is significantly less than that of the comprehensive quiz and students tend to take less time in answering the quiz questions. The vocabulary quizzes were of three distinct types: matching, filling in the blanks from Latin to English, and filling in the blanks from English to Latin. These methods were employed randomly. The comprehensive quiz also employed many methods of questioning: those listed above as well as translation passages, listening comprehension, and sentences illustrating a particular grammar point or usage.

At Site B the scores tended to reflect the same pattern as those at Site A, as illustrated in Figure 3. Differences ranged from 6.4 to 19.3 points lower on the vocabulary quizzes in this class of 10 students of average to above average ability.

	Vocabulary Scores	**Comprehension Scores**
Lesson 1	56.80%	76.10%
Lesson 2	69.20%	75.60%
Lesson 3	52.60%	65%
Lesson 4	65.30%	72%

Figure 3.

Comparison of Vocabulary and Comprehension Quiz Scores of Eighth Graders at Site B

In summation, the pattern of lower vocabulary quiz scores in comparison with the scores on the comprehensive quizzes is clearly apparent. Although there were more than four lessons studied in the course of the school year, the pattern tended to continue, with overall results being students at Site A averaging 71.6% on their vocabulary quizzes and 72.8% on their comprehensive quizzes. Students at Site B averaged 66.7% on the vocabulary quizzes and 73.6% on the comprehensive quizzes. It might also be mentioned at this point that the classes held at

Site A (whose averages were higher in comparison with those of Site B) were held in the afternoon, as opposed to those of Site B, which were held in the morning.

On the seventh grade level, a similar pattern can be detected for beginning foreign language students. Two classes formed the basis for this statement: The Site A class, a large group of 32 students, met in the afternoon, while the Site B class, numbering 24 students, met in the morning. As the information in Figure 3 suggests, the differences between the vocabulary and comprehension quizzes was not as great as in the eighth grade class at Site A, but is still apparent. It should be noted that the vocabulary lists for these students are considerably shorter and easier than those of the eighth graders. Figure 4 illustrates the vocabulary and comprehension scores in the targeted seventh grade class at Site A.

	Vocabulary Scores	**Comprehension Scores**
Lesson 1	76.40%	79.50%
Lesson 2	76.50%	78.10%
Lesson 3	85.10%	85.50%
Lesson 4	74.90%	76.20%

Figure 4.

Comparison of Vocabulary and Comprehensive Quizzes of Seventh Graders at Site A

Likewise in the seventh grade class at Site B, the pattern is repeated. Figure 4 illustrates the differences.

	Vocabulary Scores	**Comprehension Scores**
Lesson 1	87.40%	93.10%
Lesson 2	86.40%	86.60%
Lesson 3	88.60%	91.00%
Lesson 4	82.60%	83.80%

Figure 5.

Comparison of Vocabulary and Comprehension Quizzes of Seventh Graders at Site B

Reflecting on the information of Figures 4 and 5, it should be noted that the average grade for all of the vocabulary quizzes at Site A was 73.3% in comparison with the average for the comprehension quizzes, which was 75.5%. At Site B, the vocabulary average for all quizzes was 81.7% and 82.0% for the comprehension quizzes.

Probable Causes

Site Based Causes

Some probable causes for the discrepancies in the scores can be noted at this time. A simple survey developed and given by the teacher in the fall of 1997 to the eighth grade students at both sites reveals the following as possible causes for poor vocabulary scores:

	Site A	**Site B**
Inadequate time	13%	17%
Inability to memorize	27%	22%
Lack of interest	7%	4%
Poor spelling	63%	30%
*Other	13%	30%

Figure 6.

Student Reflections on Possible Causes of Poor Vocabulary Scores

There seems to be general agreement on the first three items of the survey, but the students at Site A dwell heavily on spelling errors as the cause of low grades much more than do the students at Site B. Reasons listed under the heading "Other," -- suggested frequently by the students at Site B -- included forgetting the testing day, making "silly mistakes," confusing one word for another, and not studying at all. These free responses were given by students at Site B much more frequently than by students at Site A.

There seems to be a general lack of memorizing or study skills possessed by the students. Since the vocabulary quizzes represent simple lists of words and their meanings without any additional context clues, students may find it difficult in guessing the meaning. They genuinely need to concentrate on the material to be learned. Knowing how to memorize is a basic study skill that middle school students need to attain. It should be noted, however, that many Latin words have cognates in English which can assist the student, provided the student is familiar enough with the English derivative. This requires that the individual be well-read and a good language arts student in general.

Another cause for the low quiz scores seems to be inadequate preparation or study time. At the beginning of every lesson, the vocabulary is introduced by the teacher. The instructor models the pronunciation, discusses possible English connections or suggestions for remembering, and conducts student repetition drills. The business of the lesson then begins, with the reading of a story containing the target words and additional exercises employing the words in various grammar situations. The vocabulary list, per se, is not drilled each day, but continues to be discussed as the lesson proceeds. The vocabulary quiz is given on a regularly specified day every week, giving the student from three to five days to master the list of 10 to 20 words. The teacher has observed, nevertheless, that many students tend to forget the regular occurrences of these quizzes, in spite of the fact that they are reminded on the previous day and that they occur on the same day of every week.

On the contrary, when the comprehensive quizzes are given, the student will have completed all the work of the target lesson, resulting in approximately 10 class days of exposure. In addition, comprehension quizzes can furnish other contextual clues which the simple vocabulary list cannot. Even though the comprehension quiz is much longer, employs a variety of formats, and tests over several grammar points as well as the vocabulary, the students seem to fare better.

Still another possible cause for the substandard scores seem to be the teacher's repeated emphasis on verbal learning techniques in the classroom. Methods such as oral repetition drills,

writing exercises or paragraphs, using the overhead projector, discussing derivatives, etc. tend to be highly verbal activities. Perhaps if there were more activities of different types -- puzzles, games, creative writing, cooperative learning -- the students might acquire additional skills to learn the required list. Schools in general, however, tend to be highly verbal places and successful students tend to be those who are able to learn with verbal/linguistic styles.

One final possible cause for the students' scores seems to be the lack of significant reinforcement. Although praise is heaped upon students who succeed in their Latin endeavors, some students never seem to "catch the fever." Intangible awards such as verbal compliments seem to work with many students, but not all. Other rewards such as extra credit points, being named "student of the week," and the granting of classroom privileges are also appealing to some. Unfortunately, those students needing the most reinforcement seem to be the ones for whom none of the above are interesting. They are generally lacking in motivation, whatever the type offered.

Literature Based Causes

Professional literature suggests that these probable causes are also described in research. The very fact that the targeted students are faced with the task of learning vocabulary in a rote fashion, as opposed to a natural setting, is a primary problem according to McGavin (1990), who recommends learning vocabulary in its natural contexts of speech, writing, and literature. This lack of context clues is also a major obstacle for students. Lloyd (1960, as cited in McKeachie & Doyle) observed that although words are more easily remembered than nonsense syllables, words in sentences would be learned more effectively, and words in related sentences would be even more effectively mastered. The quizzes in the target classrooms contain no context clues. Whether the words themselves are dealing with concrete objects, i.e. nouns, has a more positive effect on learning than abstract concepts (Heidbreder, 1946, as cited by McKeachie, 1966). Schouten and VanParreren (1985), as cited in Mondria (1991), state that vocabulary learned from a list has the disadvantage of being easily forgotten for the following reasons: 1) the words tend to become confused; 2) there is little cognitive foothold in which the words might take root; 3) the

student has not yet met the word in a real-life situation; and 4) the words may have a variety of meanings, depending on the context.

In addition to the above factors, the students' lack of study skills may also be a considerable hurdle to overcome. Herber (1986), as cited by Miller (1995), points out that a student's prior vocabulary knowledge has a great deal to do with his successfully learning additional vocabulary. The fact that the students may have insufficient time to learn the vocabulary lists adequately does not seem to be supported by research, as Wartik (1993) remarks that time alone is not as important a factor in learning as interference from distractions. Kiss (1988) cautions that teachers must refuse to permit activity within the classroom that might hinder this important vocabulary learning.

The teacher's positive approaches to vocabulary learning are also likely factors in student mastery of the required vocabulary lists. Although Stall, Graves and Prenn (1986), as cited by Symborski (1995), believe that there is no one best way for an instructor to approach vocabulary learning, a variety of methodologies should be considered. Gardner (1983) comments, "Only if we expand and reformulate our view of what counts as human intellect will we be able to devise more appropriate ways of assessing it and more effective ways of educating it." (p.4)

The problem of student motivation is a serious one for all learning environments. Motivation can be in the form of external rewards such as bonus points, treats, etc., or internal, in the form of praise, but motivation, according to Wartik (1993), is crucial to any academic performance skill. Without motivation, learning may not occur. As students perform better with the passage of time, that in itself may increase motivation for further learning, according to Wingfield (1979).

In conclusion, then, the probable causes of lack of study skills, inadequate preparation, monotony of teaching methodology, and student motivation appear to be contributing factors to the low scores at both target schools. These four areas provide the focus for the interventions of this project.

CHAPTER 3

THE SOLUTION STRATEGY

Literature Review

Helping students remember various facts associated with classroom lessons appears to still be one of education's most difficult challenges. Literature dealing with the topic offers a variety of possible solutions. Of the probable causes suggested, the problem of lack of study skills to assist the student in remembering the targeted vocabulary is a primary consideration.

Although there can be little argument about the benefits of teaching study skills, Wingfield (1979) observes that the teaching of specific memory "tricks" is often thought of as a undesirable crutch which may actually obscure real learning. Teaching students the specific art of memory work, however, more often brings good results since the students feel they possess some control over the way they are learning.

Mnemonics, the so-called tricks of memory, were once considered almost magical arts, along with the traditional pills and tonics thought to aid the memory process. In reality, these mnemonics may simply be strong and focused study habits. For effective memorizing to take place, three conditions must be met: effective learning, effective storing, and effective retrieving (Wartik, 1991). Hunter (l994) maintains that the first of these is the most important. Wingfield (1979) adds that attention to the material to be memorized is vital, and distractions must be filtered out as much as possible. Nevertheless, Broadbent (1954, 1958, 1971), as cited by Wingfield (1979), states that total and perfect attention is virtually impossible, but experience

seems to indicate that some activities can be done with less than perfect attention. An example of such activity might be the listening to a book on tape while driving a car.

Kiss (1988) offers her own set of solutions to the problem of effective learning of vocabulary for memory storing. She specifically mentions active listening, with a focus on something visual. Games and classroom activities may also improve the initial learning experience, making remembering easier. A multi-sensory approach is recommended, employing the usual auditory and visual perspectives, but occasionally experimenting with the tactile, gustatory, and olfactory approaches.

Wonder (1984) is skeptical about the use of mnemonics as a miracle tool. She prefers to describe mnemonics as "the conscious use of both sides of the brain." This description is more in keeping with current terminology. Most people believe that good memory is an inherited trait, but Wonder believes that although some individuals may be gifted with superior memories, the practice of memorizing can be improved with a knowledge of a few techniques, the discovery of a style that works for the individual, and, of course, practice.

Memory expert Lorayne (1990) includes several tips in his book for the student who seriously wants to improve his or her memory in a foreign language classroom. His "link system" -- that is, the practice of associating objects together in an almost unnatural way -- seems to be his key to improving the grades of his student readers within 30 days. Many of his tips reinforce the concept of attentive and focused learning. Fry (1996), in writing for students seeking to improve memory skills, offers such suggestions as writing everything down, utilizing graphic organizers, producing tapes, avoiding distractions, training the attention span, and, of course, practicing and training the memory as often as possible.

Service (1995) adds that even though the learning of a foreign language is heavily dependent on vocabulary acquisition, certain elementary study skills must be present in the student for effective learning to take place. All of these elementary study skills are somewhat interrelated and interdependent. Although from a physical standpoint, the optimum age for making the

microscopic connections between nerve fibers of the brain necessary for second language learning is between 2 and 11 years of age, formal operational thought is believed to begin at approximately age 11, making the learning of a foreign language very appropriate to the middle or late elementary school student, given the correct environment (Nash, 1997).

The question of lack of time or adequate preparation can certainly be a factor. For many children, a school setting is the first time they are exposed to formal memorization challenges. Wingfield (1979) writes that in spite of the fact that young children can and do take part in learning activities very successfully, the schoolroom often represents many "firsts" for them: the scheduled day and the urgency of doing a lesson according to the teacher's plan; the increased flow of information; a less natural and less relevant environment to their previous world; and, of the most importance, the first time formal accountability for their learning. Of additional significance, says Lefrancois (1982), is the adequate spacing of material to be learned at a gradual pace. Barlow (1985) adds that if the research of Biehler and Snowman (1982) can be believed, a ten-year-old child can benefit from the repetition of these spaced rehearsals to the same extent as an adult.

The teacher's attempts to encourage learning must take different directions and cater to the various styles of the student. Chapman (1993) suggests that, even though there is no one best way to teach a subject, costs and benefits of each approach should be carefully weighed with the responsibility on the teacher's shoulders to find each student's particular path to learning . Nelson-Herbert (1986) thinks that vocabulary activities that employ using context and prior knowledge of the student are definite plusses for learning the definitions of new words. In addition, these activities are most effective when they involve students in cooperative learning.

McGavin (1990) reminds teachers that successful learning of vocabulary appears to be based on appealing to the affective, psychomotor, and intuitive brain functions, as well as to the cognitive. Of these domains, the affective generates the enthusiasm, excitement, and interest in

learning which is so crucial in contributing to the success of students. Klein (1993) adds that students tend to retain better what they learn in these creative environments.

Project Objectives and Processes

As a result of increased emphasis on the teaching of study skills, particularly involving memorization techniques, as well as an increased awareness on the part of the instructor of multiple intelligence approaches to classroom learning and adequate reinforcement, during the period of September, 1997, to January, 1998, the eighth grade students from the targeted Latin classes will increase their scores on their vocabulary quizzes, as measured by reviews of previous test scores, comparisons with current scores, and teacher observations. As a result of the same emphases, the seventh grade students of the targeted Latin classes will acquaint themselves with study skills and techniques to enable them to begin the study of vocabulary more efficiently and develop a realization of learning styles. This objective will be measured by teacher observations, student surveys, and journals.

As an additional result of the emphasis on multiple intelligences methodology in the classroom, during the same period, the targeted classes will also increase their retention of the designated vocabulary as measured by higher scores on objective tests of a more complex nature, by teacher observation in other potential areas of transfer, post-tests, and student surveys and journals.

In order to accomplish the terminal objective, the following processes are necessary:

1. Lesson plans and materials will need to be created which address four of Gardner's identified intelligences: kinesthetic, verbal-linguistic, interpersonal, and visual-spatial.

2. Learning activities drawing on the intelligences will need to be employed at the beginning of each lesson.

3. Students will need to be actively involved in the development of games and activities for classroom use.

4. Special attention will need to be given to mnemonic devices and study skills to help with the memorization and retention of the target vocabulary.

5. Surveys will need to be created and administered to identify student attitudes about the testing process and to identify possible grouping according to intelligences for future work.

Project Action Plan

I. Weeks 1 and 2: Establishing the Climate

A. Reflective and Metacognitive Activities

1. Administer survey to eighth graders on learning styles (intelligences)
2. Develop and administer similar survey to seventh graders
3. Set-up journals
4. Identify possible task groups or cooperative groups

B. Curriculum Activities

1. Develop lesson plans for lessons 1-4
2. Develop tangent activities to complement lesson plans
3. Investigate/read additional material on incorporation of multiple intelligences into classroom routines
4. Compare/contrast lesson plans and strategies between the groups of Sites A and B.

II. Weeks 3 and 4: Implementing Strategies

A. Reflective and Metacognitive Activities

1. Discuss learning styles of students and teacher
2. Emphasize kinesthetic approach in vocabulary introduction in both groups
3. Reinforce study skills

4. Observe and record results

B. Curriculum Activities

1. Develop kinesthetically based lessons

2. Practice writing skills

3. Production of kinesthetically based quizzes

4. Compare/contrast current and previous scores

III. Weeks 5 and 6: Adapting to Different Styles

A. Reflective and Metacognitive Activities

1. Journal on kinesthetic strategies

2. Discuss verbal/linguistic intelligence

3. Generate ideas with students about presentation of the lesson

4. Reinforce study skills continually

5. Observe activities and record events

6. Compare/contrast scores and analyze data

B. Curriculum Activities

1. Develop verbal/linguistic based vocabulary lesson

2. Develop verbal/linguistic based vocabulary quiz

3. Record data

4. Observe and reflect on the verbal/linguistic lesson

IV. Weeks 7 and 8: Changing Roles

A. Reflective and Metacognitive Activities

1. Journal on verbal intelligence by students

2. Discuss interpersonal intelligence

3. Select partners for group study and cooperative learning activities

4. Observe activities and record events

5. Reinforce study skills as before

6. Compare/ contrast the data

B. Curriculum Activities

1. Develop partner activities and games for students
2. Develop and administer a cooperative/partner vocabulary quiz
3. Record the data
4. Observe and reflect on the cooperative/interpersonal experience

V. Weeks 9 and 10: Focusing on Retention

A. Reflective and Metacognitive Activities

1. Journal on interpersonal experiences
2. Discuss the visual/spatial intelligence style
3. Brainstorm strategies for help with retention and recall
4. Develop graphic organizers to help with retention
5. Observe activities and record events
6. Reinforce previous vocabulary and study skills
7. Compare/contrast the data
8. Assess the entire project

B. Curriculum Activities

1. Encourage students to develop memory games and strategies
2. Trade memory tools and techniques
3. Administer the vocabulary quiz
4. Record the data
5. Observe and reflect on the visual/spatial experience

Methods of Assessment

In order to assess the effects of the intervention, quizzes covering the vocabulary content of

five selected lessons of the textbook will need to be developed. However, these quizzes will vary only slightly from the standard quizzes to which the students have been accustomed over the past two years, in order to create a viable comparison with the scores of last year's classes. In addition, students will be asked to write evaluative journal pages on the activities that will be developed by their classmates and undertaken during classtime as well as a vocabulary journal page which will be written after the target lesson has been long ended to assess longer-term memory, provide for student reflection, and provide a subjective evaluation on the activities presented. These evaluative tools will be designed with stem statements for the students to complete which encourage serious thought and provide a focus for their evaluations.

CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

The terminal objective of the intervention addressed the improvement of the quiz scores of students in simple Latin vocabulary. Indications were that the desired improvement could be effected through the use of four of Gardner's multiple intelligence skills. The four intelligences that were specifically selected to use in the creation of activities for the Latin classroom were: kinesthetic, verbal-linguistic, interpersonal, and visual-spatial. These were selected by the teacher as the areas with the most promise for successful implementation in a foreign language classroom.

During the first week of the school year, the seventh and eighth grade students at both Sites A and B were introduced to this project. The eighth grade students in this study were the seventh grade students whose scores of the previous school year were reported in Figures 3 and 4. The eighth grade class at Site A now numbered 30 students, and the class at Site B, 23 students. The seventh grade class at Site A now numbered 18 students, and the class at Site B, 20 students. The Latin students of all the classes were divided into four teams, according to their learning style preference. A simple questionnaire developed and modified by the teacher was given to assist students in discerning their preferences (see appendix G). The resulting four groups corresponded with the four multiple-intelligence areas mentioned above: kinesthetic, verbal/linguistic, interpersonal, and visual/spatial. An attempt was made to keep the groups evenly divided as much as possible, so that in the event that a student selected more than one learning style as a preference, the teacher made the final decision as to what group the student joined. Each group

in the eighth grade classes was given the task of designing two activities which would help to teach the vocabulary of the lesson which they were assigned. The students were told that the activities should correspond as much as possible to the learning style of the group, i.e., each group would design activities which suggested their strength as learners. These groups, once established, were maintained throughout the intervention. The seventh grade students, although being assigned to a group, did not take an active part in the planning activities, as did the eighth grade classes. On the contrary, the teacher selected the best of the eighth grade activities to pursue with these students. A letter was sent home (see appendix A) explaining the project to parents.

In the meantime, while the planning for the first group was being conducted, the teacher began the school year and the first lesson in the textbook in the usual fashion. The first vocabulary list of the year was introduced as had always been done: the teacher pronounced the words, helped students in their pronunciation, offered suggestions on derivatives and study helps, and administered the usual quiz after approximately three days study time. The remainder of the lesson was taught, with the usual comprehension quiz following at the conclusion of the two-week period. During this time, students in the first learning group were given some released time to do their activity planning. They were offered suggestions taken from the ideas of Lazear and Gardner, but also given a free hand to design their own activities which they thought would be appealing to their fellow classmates and also achieving the desired result of helping themselves remember the words on the upcoming quiz.

The students in the four learning groups were very interested in their particular learning styles and even more eager to design lessons to implement the styles. When parents received the letter requesting permission (see appendix C) to allow their sons or daughters to participate in this research, they too became interested in the project and in the question of learning styles. Parents' Open House in the fall brought forward several inquiries about the subject. The teacher, in the meantime, tried to keep the lessons on an even keel, although making a point to avoid the usual

verbal approaches of the past: fewer worksheets, fewer lectures with the overhead projector, and so forth. Time was spent in the design of charts to record vocabulary quiz scores and memory improvement.

The first group to offer intervention activities was the "kinesthetic learners," -- fondly dubbed the "K group." As the second lesson of the text was introduced, the teacher no longer read the words as before, but turned that activity over to this small group. The same practice was done at both Sites A and B. Students themselves introduced and pronounced the words of the Latin vocabulary list, with corrections provided by the teacher if necessary. Then one intervention was given by the students of the learning group, with the second intervention following in 2 or 3 days. The activities introduced by the students in the K group included the making of a mobile, the playing of a vocabulary game which involved moving around and going to the chalkboard, and the performance of a skit with the target words. No activity lasted more than 10 minutes. After the standard study time of 3 to 4 days, the students were given the usual vocabulary quiz on the words of lesson 2. After the quiz had been given, the teacher continued on with the lesson, teaching whatever grammar points were relevant, utilizing as much as possible the kinesthetic approach. Computer programs which drilled the vocabulary were made available to any student who had a home computer and who wished to do this type of study. The students then took the comprehension quiz on the lesson after the usual time allotment of 8-10 days. As the remainder of the lesson was being taught, students in the next activity group were given released time to do their planning. After the learning group presented their activities, an evaluation journal sheet was given to all the students in the class which gave feedback to the group conducting the activities. Positive and negative comments were presented and the results shared with both the team completing the activities and the next team which would be planning the activities. At the conclusion of the lesson and as the new lesson was being introduced, a vocabulary journal page was given all students, asking them to remember as many of the vocabulary words of the previous lesson as possible. The journal pages also gave a chance to reflect on the activities offered during

the lesson and how they might have assisted in the memorizing process. This schedule of journaling was maintained during the entire intervention period.

The second group to take over the planning was the verbal-linguistic learning strategists (V group). These students offered the alternative activities of a crossword puzzle containing the target words, a word search puzzle, and a memory game (played much like the popular children's board game). Once again, two different vocabulary activities were offered by the students, each lasting about 10 minutes and spaced approximately 2-3 days apart. As previously noted, after the vocabulary quiz was administered, the teacher took over the instruction on the essential grammar points. At the conclusion of the lesson, the comprehension quiz was administered, the students reflected on the work of the verbal/linguistic group, and vocabulary journals were again written which put a closing on the lesson.

The third learning group, the interpersonal learners, took over during the next two weeks. The student planners in this group chose to center their activities around the learning groups themselves, with all activities done in a team spirit and atmosphere. They arranged to play "around the world" with the vocabulary words, wrote silly sentences which utilized the words, and designed other team-type games. The teacher encouraged the atmosphere by allowing students to work on assignments within their teams. Once again, following the vocabulary activities, the remainder of the lesson was taught and quizzes administered.

The last group to contribute to the planning was the visual/spatial learners, who introduced the vocabulary by having the students draw pictures of the selected words. The best pictures drawn by Site A students were hung on the bulletin board at Site B as a continual reminder of the words, with the drawings of Site B students adorning the Site A classroom. Other techniques used included the making of flashcards, the playing of "Pictionary," and an additional vocabulary game which had been done last year. As in previous groups, the visual/spatial group used approximately 10 minutes for each of these activities, spacing them 2 or 3 days apart. This fourth

lesson involving interventions (Lesson 5 in the text) was concluded with the customary vocabulary and comprehension quizzes, a reflective journal, and a vocabulary journal.

While the above activities took place in each of the eighth grade classes at Sites A and B, the seventh grade classes at both sites, divided similarly by their learning styles, were instructed using some of the activities suggested by their eighth grade counterparts. Students in these classes, however, took no direct hand in the planning and implementation of the activities, but were allowed to participate in the activities as directed primarily by the teacher. The teacher opted for directing the activities mainly since the students were relatively new at foreign language study skills and needed direction during these first weeks of the school year. Discussions on the various learning styles were held, and the students enjoyed hearing about the various methods being employed in the other Latin classes.

Presentation and Analysis of Results

The results of this invention of using multiple intelligence activities to improve vocabulary learning rests primarily on the results of the vocabulary quizzes administered during this 10 week period. Identical quizzes were given at both Sites A and B with the class averages on the quizzes recorded and illustrated in Figure 6. It is once again to be noted that Lesson 1 was the section of no interventions, taught in the customary way by the teacher. With the implementation of the multiple intelligence activities, the scores immediately began to improve. Using the quiz averages of Lesson 1 as a starting point, vocabulary quiz averages at Site A improved from 4.3% to 10.2% and at Site B from 4.0% to 15.2% in comparison to their predecessors who studied the same lessons in the previous year. These percentages represent the improvement of more than one whole letter grade from the beginning averages. At Site A, the greatest improvement came during the week of verbal/linguistic activities, while at Site B, the greatest improvement occurred with the implementation of interpersonal vocabulary activities. This variance seems to be attributed to the strength of the particular activities designed by the groups at each of the two sites.

	Site A	Site B
Lesson 1 (quiz #15)	70.80%	79.30%
Lesson 2 (quiz #16)	75.10%	83.30%
Lesson 3 (quiz #17)	80.00%	90.90%
Lesson 4 (quiz #18)	77.10%	94.50%
Lesson 5 (quiz #19)	76.20%	91.60%

Figure 7.

Comparison of Vocabulary Scores at Sites A and B Using Multiple Intelligences Interventions

The students at Site B show a remarkable improvement, particularly by the interpersonally based fourth lesson. On the contrary, the students at Site A begin a slight downturn at lesson 4.

A factor which may have contributed to this backslide was the fact that lesson 4 was taught during a period of state-mandated testing, which caused the classes at Site A to be canceled for three days. This, certainly, took away some of the momentum in the progress of the students at Site A. As previously noted, the students at Site B -- a smaller class which meets in the afternoon -- tend to score generally higher than the students of Site A and benefited more from the work with multiple intelligence skills.

When comparing the quiz averages of the students involved in this research with the averages of last year's eighth graders, improvement may also be noted.

	Current 8th graders-Site A	Former 8thgraders-Site A
Lesson 1(#15)	70.80%	57.10%
Lesson 2(#16)	75.10%	71.30%
Lesson 3(#17)	80.00%	64.80%
Lesson 4(#18)	77.30%	73.80%

Figure 8.

Comparison of Vocabulary Scores of Current and Former Eighth Graders - Site A

An improvement of from 3.5% to 15.2% from the preceding year can be seen by using the multiple intelligence skills with eighth graders. This is in spite of the fact that the current eighth grade class numbers 30, while the former eighth grade class numbered only 9 students.

A similar pattern may be detected at Site B, where the improvement was even more remarkable. The current eighth graders, while using multiple intelligence techniques to learn their vocabulary, registered improvements of from 14.1% to 37.3% over their predecessors, who enjoyed no such interventions.

	Current 8th Graders-Site B	Former 8th Graders - Site
Lesson 1(#15)	79.30%	56.80%
Lesson 2(#16)	83.30%	69.20%
Lesson 3(#17)	90.90%	52.60%
Lesson 4(#18)	94.50%	65.30%

Figure 9.

Comparison of Vocabulary Scores of Current and Former Eighth Graders - Site B

The improvement in vocabulary scores is, once again, clearly evident, even though, as in the case of Site A, the class of current eighth graders is much larger (23) than the previous eighth grade class (10). The use of the multiple intelligence techniques seems to be a remarkable tool in maintaining the interest of the students and improving their vocabulary scores.

Another question to be examined is not merely whether the improvement of the simple vocabulary quiz scores is due to the various techniques employed in class, but also whether the techniques have an impact on the comprehension quizzes administered at the end of each chapter. Figure 10 addresses this question.

	Vocab.Site A	Comp. Site A	Vocab.Site B	Comp. Site B
Lesson 1(#15)	70.80%	79.90%	79.30%	82.10%
Lesson 2(#16)	75.10%	61.00%	83.30%	70.70%
Lesson 3(#17)	80.00%	75.30%	90.00%	86.00%
Lesson 4(#18)	77.30%	64.20%	94.50%	69.80%
Lesson 5(#19)	76.20%	61.20%	91.60%	73.90%

Figure 10

Comparison of Averages on Vocabulary and Comprehension Quizzes at Sites A and B

With the exception of the first lesson, which contained no interventions, the scores on the vocabulary quizzes remained higher than the comprehension quizzes. These comprehension quizzes, it should be noted, contain the target vocabulary as well as other grammar points of the lesson which should make it significantly more difficult than the context-free vocabulary quiz. Although the vocabulary retention remained high in the comprehension quizzes, the addition of several other skills demanded that the students master both more and harder material.

More subjective evaluations were made in the use of the reflective journals that were written after each group has developed and introduced its activities for the lesson (see appendix I). A "plus-and minus" type evaluative tool, as illustrated in the appendix, was designed, with the students given free rein to give comments to the targeted team. The format of the journal encouraged the students to see the positive and negative of each presentation. Those students who had actually prepared and performed the activities were also asked to respond.

The results of these journals can best be described as varied. Some of the positive comments included: "challenging," "fun," "well-organized," "helpful," and "interesting," while the negative comments included such remarks as " unoriginal," "confusing," "uncontrolled," "boring," and "vague." Some papers had conflicting comments while others gave no answer or a neutral comment such as "okay." More interesting reading could be found under the heading marked "comments," where students could write open-endedly. This section of the journal often became the place to complain about members of one's own team. Individuals who took an active role on the teams were often termed "bossy," while the more active students tended to label their co-workers as "lazy" and "non-productive." In almost every evaluation, a significant number of students mentioned that the activity was "out of control" or "unorganized." In the teacher's opinion, the students of all groups were basically equipped to carry out their chosen activities, but in reality, as some problems cropped up, they were unequipped to make changes or slight alterations in the plans. The planning team could not effectively deal with the problems of confusion of the rules, uncooperative students, unforeseen situations such as interruptions in the

class period, etc. During these difficult times, the teacher did her best to remove herself from interfering, but patience wore thin. On the positive side, students enjoyed being rewarded with various treats during the games, a fact which made even the most confusing game seem tolerable.

As the evaluations progressed week to week, students were able to make more judgments about the validity of the activities. Many were able to point out that the activity in question was a combination of intelligence skills. On the other hand, students tended to write less as the weeks went on, or tended to make the same kind of comments, regardless of the success of the activity.

Another interesting comment brought out by these journals was the fact that many of the students, particularly the better students, felt that the activities offered were not helpful to them personally. Above-average students tended to think that the activities pertained more to the struggling students than to them, and they tended to rate the activities more unfavorably than the average or below-average students. This fact tended to be constantly reflected in the journals. The low-average students had more favorable comments while the high-average students felt they knew how to deal with the vocabulary in their own way, thereby making the multiple intelligence-based activities more meaningless to their situations.

The teacher also kept a journal for each group and offered a grade for the activities they had planned. The teacher was impressed with the variety of activities presented and how successful they were. The making of the mobile was a special case in point. Upon first seeing the mobile, the teacher thought it was a rather passive-type intervention to use in class. However, as the lesson progressed, the mobile became the center of attention in the classroom of Site A Students were excited to move the mobile around the room so they would be within eye contact of the dangling mobile. It was a sad day when the mobile came down so that the vocabulary test could be given.

On the negative side, the teacher pointed out lack of control by the target group in maintaining order during the various activities prevented those games and activities from being even more successful. The teacher was not aware of the dynamics within each learning group and

was interested to hear of dissension or cooperation from the teams. Absences of team members, whether during the planning period or during the actual presentation, were devastating to the teams, although absences did not exceed the usual expected number during this period..

The keeping of these journals was helpful to the teacher in gaining insight into the production of the activities, and was also helpful to the individual groups as they planned their lessons based on the experiences of the prior groups. It was important to the students to read the comments of their peers.

Still another means of subjective evaluation was the vocabulary journal (see appendix J) which was completed at the end of the lesson and sometimes while the next lesson was being introduced. This item provided the teacher with some feedback on longer-term memory for the targeted vocabulary of the lesson (see appendix

The format of the vocabulary journal was such that the student was required to list any of the vocabulary words/meanings he could remember. Words had to be spelled correctly, and alternative forms of the word (past tense, plurals) would not be accepted. The word had to be reproduced in the exact form as it appeared, with no context clues provided. In addition, there was a section asking for a free response to the question: How did you learn these words? and still an additional section asking the students to select which activities done in class were most helpful in learning. Figure 11 shows the results of the listing of the vocabulary words.

	Site A	**Site B**
Lesson 1(#15)	6.2 (20)	8.9(20)
Lesson 2(#16)	10.6 (17)	13.7 (17)
Lesson 3(#17)	8.2 (10)	9.2 (10)
Lesson 4(#18)	6.2 (19)	6.0 (19)
Lesson 5(#19)	5.1 (18)	7.7 (18)

Figure 11.

Average Number of Vocabulary Words Recalled After Two Weeks' Time at Sites A and B

The figure shows that at the beginning of the year, students at Site A were able to recall an average of 6.2 out of 20 vocabulary words and their meanings after approximately a two week period had elapsed, having experienced no interventions. The recollection experience demanded that the students reproduce the words exactly as on the printed vocabulary page -- a very high-level skill. At Site B, students fared better, having been able to recall 8.9 of the 20 words. This average improved during the next lesson at both sites and although it appears to decline in the third lesson, it should be noted that since the number of words to be learned was merely 10, the scores of 8.2 and 9.2. are, in fact, very good. The average score in the final two lessons, however, appears to decline, regardless of the number of words to be learned.

In the part of the journal asking for the responses to the questions: 1) How did you learn (the target words)? and 2) Which activities in class were helpful in learning this lesson and its vocabulary?, responses to the first question were far ranging. Most students, particularly the better students, replied with such statements as "by memorizing them," "by learning them myself," or "by having someone help me." Few students mentioned the activities done in class as being of help in remembering the words over a longer period of time. In regard to the question involving the activities, many students did reflect and recall the specific activities of the lesson, particularly those students who had been directly involved in the planning and execution of the activities. Still, more than a few students mentioned (as in the previous journal experience) that they felt that none of the activities were greatly beneficial. Upon reading these journals, it is the teacher's opinion that the multiple intelligence activities provided to the classes did not have much impact on the student's long-term memory.

On another front, in the seventh grade classes, the benefits of learning via multiple intelligence activities were also evident. In these two classes, the teacher selected the best of the activities planned by the eighth grade classes and executed them with the students. These students, therefore, had less involvement in the actual planning of the lessons and merely participated in selected activities as the teacher saw fit. Figure 12 shows the average scores for

these students, whose vocabulary lists were naturally more elementary than those of their eighth grade counterparts.

	Site A	Site B
Lesson 1	85.20%	79.90%
Lesson 2	90.30%	79%
Lesson 3	86.90%	81.50%
Lesson 4	78%	74.80%
Lesson 5	94.60%	75.90%

Figure 12.

Comparison of Vocabulary Scores of Seventh Graders at Sites A and B

The Site A class, an exceedingly bright group of 18 students, began the first lesson with an unusually high class average, making it difficult to improve. Their scores, however, tended to rise as the lessons passed, with the exception of the fourth lesson, which occurred, as in the eighth grade class, at a time of state testing and missed class days.

The Site B class, a good but not exceptional group of 20 students, did not fare as well, even though their were introduced to the same activities as the students at Site A Their vocabulary score averages increased only slightly, and, in fact, went down during the fourth and fifth lessons. Part of the reason for this downturn could have been the fact that the vocabulary lists of lessons 4 and 5 numbered 26 and 32 words respectively -- quite a task for a novice foreign language student! -- while the lists in lessons 1, 2, and 3 numbered 20, 16, and 18 words. The missed class days during the fourth lesson affected the students at Site A, but not at Site B. The lengthy vocabulary lists, it should be noted, did not affect the students at Site A.

The students in these classes did not keep written journals but preferred to occasionally discuss the various ways of learning the vocabulary that might be helpful.

Conclusions and Recommendations

The research indicates that using multiple intelligence skills in the learning of vocabulary lists can be a helpful tool. Students were able to improve on their base vocabulary scores as well

as the scores of their predecessors when they were actively involved in the planning of and participating in various approaches to vocabulary learning. The variety of methods employed were apparently attractive to a wide range of students. Students of all abilities, but especially the low-average students, benefited from learning in different styles. The fact that also, in general, more class time was devoted to vocabulary study was an important change in the usual vocabulary lesson routine. Although, at times, students did not feel that the activities were especially helpful, the steady increase in the average scores seems to prove them wrong. For all the students of the four classes of Sites A and B, an awareness of their own learning style and what activities were helpful to them as learners in a diverse classroom, was certainly of the utmost importance. As many students pointed out, learning must be individualized. For those students who already were aware of their ways of knowing, the activities may have seemed useless, but for the majority, who were still discovering how they learn, the activities were eye-opening.

The research would indicate that teachers should make every effort to employ the skills of the various intelligences -- it matters not which ones -- in their teaching of vocabulary. The more the students are actively involved in the lessons, the greater the benefits.

The employment of multiple intelligence skills, however, does not seem to have as strong an effect on long-term memory of these middle school students. Further research needs to be done on the question of which skills seem to have the greatest impact on long-term retention. The researcher fully intends to do her part in expanding this knowledge of memory and multiple intelligence skills in her own classroom. Continual development of a wide variety of teaching tools and strategies can provide these preliminary steps in vocabulary improvement with a source of energy in future years.

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Appendices

Appendix A

Copy of Learning Styles Inventory

Name:_____
Class:_____
Period:_____
Date:_____

Check ANY of the following items that are like you. You MAY check MORE THAN ONE when there are more than two choices offered. For a question with only two choices, you may select only one. If NONE of the choices describe you, leave the question blank. Put the letter or letters in the blank.

1. _____ You have just purchased a new bike that has come with 32 parts. In order to assemble the bike, which would you prefer?

a. to have someone describe what to do
b. to read the directions and look at the illustrations or have someone demonstrate
c. to work with the parts -- just jump in and do it!

2. _____ You are learning a physical activity that is new to you, such as Nordic skiing. Do you prefer..

a. to just do it and ask questions as you go
b. to watch others doing it
c. to have someone explain what to do

3. _____ You are studying in a comfortable room and a dog starts barking nearby. Would you....

a. tune it out
b. have to stop the barking before you continue studying

4. _____ After you have met a person, you can most often....

a. remember the face but not the name
b. remember the name but not the face
c. remember what you did together

5. _____ When you are put on the spot and have to respond verbally, do you....

a. find you can think of several possible replies
b. think of what to say later, after the incident
c. first consider other people's feelings

Appendix A
Copy of Learning Styles Inventory

6. _____ When talking on the phone, I doodle.

a. Yes
b. No

Now circle the correct answers....

7. People tell me that when I talk, I often
a. talk slowly
b. talk rapidly
c. talk spontaneously

8.At times I move my lips when I read to improve my understanding of a passage
a. yes
b. no

9. I'm known as a good listener
a. yes
b. no

10. I have a hard time sitting still through presentations in class.
a. yes
b. no

11. I am good at observing and understanding body language.
a. yes
b. no

12. I'd much prefer telling something to a person or calling them on the phone than writing a memo or letter to them.
a. yes
b. no

13. When I walk into a room full of strangers, I assess the atmosphere
a. by looking around at what is going on
b. by feeling the tone of the room
c. by listening to the sound of conversation

Multiple choice, page 38

Appendix A
Copy of Learning Styles Inventory

14. When I am conversing with a friend, I
a. like to sit facing him or her
b. like to take a walk while we talk
c. like to do it by phone
d. like to sit comfortably

15. When you have been very attracted to someone, what first got your attention?
a. what they said to you or what you heard about them
b. appearance
c. the sound of their voice or another distinct quality
d. what the person did well

16. When I make a decision, it is helpful if I
a. picture the outcome in my mind
b. hear both sides of a dialogue in my head
c. sense how I would feel if either choice happened
d. experiment

17. When I have to spell a word I'm not sure of, I
a. look at the word in my mind to see if it looks right or write it down and look at it.
b. get a feeling it is right or write it down to see if it feels right
c. spell the word out loud or hear it in my head

18. When I experience a sense of dislike the first time I meet someone, I
a. am put off by their treatment of other people
b. am put off by their looks
c. am put off by what I hear them say and the tone of their voice
d. am put off by their actions or lack of ability

19. It is more important to me in my work environment to have
a. pleasant lighting that isn't too bright
b. music playing
c. a comfortable room temperature
d. lots of room

Multiple choice, page 39

Appendix A
Copy of Learning Styles Inventory

20. It is easier for me to get sleep if:
a. the room is dark
b. the room is hushed and pleasant sounding
c. the bed is comfortable

21. When a problem is weighing heavily on me, I:
a. write down solutions so I can see my options clearly
b. talk about it because in hearing myself talk, I figure out the answer
c. stop worrying about it and take action as soon as possible

22. I enjoy playing games such as PICTIONARY and WHERE'S WALDO
a. yes
b. no

23. I notice a lot of detail in what other people wear:
a. yes
b. no

24. When I have an assignment, I am most successful:
a. giving a verbal presentation to the class
b. getting others involved with me
c. using posters, objects or charts to help me
d. leading discussion with others

25. My room is most like the following:
a. very organized with a desk, colorful bulletin boards or posters
b. the desk is out of the way and used as a storage area; lots of supplies for work; most of the space is at the middle of the room
c. furniture is in no particular arrangement or can be easily changed; places to sit and talk; music and books are available.

Multiple choice, page 40

Appendix B
Copy of Learning Styles Inventory Answer Sheet

KTAV INVENTORY ANSWER SHEET

QUESTION NO.	IF YOUR ANSWER WAS....	SCORE 1 IN.....
1	A	A
	B	V
	C	K AND T
2	A	K AND T
	B	V
	C	A
3	A	K AND V
	B	T AND A
4	A	V
	B	A
	C	K AND T
5	A	A
	B	V
	C	T
6	A	T AND V AND K
	B	A
7	A	V
	B	K AND A
	C	K AND T
8	A	A
	B	T AND V AND K
9	A	A
	B	T AND V AND K
10	A	K AND T
	B	V AND A
11	A	V AND T
	B	A AND K
12	A	A
	B	T AND V AND K
13	A	V AND K
	B	T
	C	A

APPENDIX B
COPY OF LEARNING STYLES INVENTORY ANSWER SHEET

14	A	V AND T
	B	K
	C	A
	D	K AND T
15	A	A
	B	V
	C	T
	D	K
16	A	V
	B	A
	C	T
	D	K
17	A	V
	B	K AND T
	C	A
18	A	T
	B	V
	C	A
	D	K
19	A	V
	B	A
	C	T
	D	K
20	A	V
	B	A
	C	K AND T
21	A	V
	B	A
	C	K
22	A	V
	B	T AND A AND K
23	A	V
	B	T AND A AND K
24	A	A
	B	K
	C	V
	D	T

APPENDIX B
COPY OF LEARNING STYLES INVENTORY ANSWER SHEET

25	A	V
	B	K AND T
	C	A

NOW TOTAL ALL YOUR A, T, K, AND V SCORES. WHICH IS THE HIGHEST?

Appendix C
Copy of Parent Permission Letter

September, 1997

Dear Parents:

This year I will be completing requirements towards an advanced degree in educational leadership and training through St. Xavier University. One of the requirements is the completion of an action research project -- one which requires the compilation and usage of live data, as taken from classes I will be teaching this year. I have chosen the topic of vocabulary improvement.

As part of this project, students will be asked to complete surveys and reflective journals as well as design teaching tools for use in our classroom. Strategies for improving memory and study skills will be taught and implemented in class.

The results of this study will be part of a research exhibition in the spring of 1998 as well as part of a research paper. The students' identities will not be revealed in the data collected.

If you have any questions or concerns about this project, feel free to call me. Thank you for your cooperation in signing the required form and returning it promptly.

Virginia Anderson
Latin Instructor

BEST COPY AVAILABLE

Appendix C
Copy of Parent Permission Letter

I give my son/daughter _____ permission to participate in the action research project.

_____ _____

Signature of Parent **Date**

Appendix D
Copy of Vocabulary Quiz - Lesson 15

Latin 8
Quiz 15A Nomen _____

I. Give the English:

1. bos, bovis _____
2. appareo, apparere _____
3. plaustrum, i _____
4. exspecto, exspectare _____
5. diu _____
6. procul _____
7. duae _____
8. pulvus, pulveris _____
9. tardus _____
10. nubes, nubis _____

II. Give the Latin. You must give all the necessary information and spell correctly.

1. four _____
2. besides _____
3. wheel _____, _____ ( )
4. to go past _____, _____
5. long _____
6. load _____ , _____ ( )
7. that _____
8. perhaps _____
9. only _____
10. to Naples _____

Appendix E
Copy of Vocabulary Quiz - Lesson 16

Latin 8
Quiz 16A

Nomen _____

I. Give the English:

1. ut _____
2. pila ludere _____
3. apud _____
4. illa _____
5. excipio, excipere _____
6. in animo habere _____
7. relinquo, relinquere _____
8. hospes, hospitis _____
9. visne _____
10. itaque _____
11. Sextum taedebat _____
12. aperio, aperire _____

II. Give the Latin:

1. ball _____, _____ ( )
2. ninth _____
3. mind _____, _____ ( )
4. joke _____, _____ ( )
5. know _____, _____
6. dearest _____
7. her, it _____
8. about _____
9. to strike, hit _____, _____
10. dead _____, _____, _____
11. with us _____
12. to turn _____, _____

Appendix F
Copy of Vocabulary Quiz - Lesson 17

Latin 8
Quiz 17A

Nomen _____

I. Give the English:

1. periculosus, a, um _____

2. caupo, cauponis _____

3. Graecus, a, um _____

4. advesperascit _____

5. caupona, ae _____

II. Give the Latin:

1. eleventh _____ _____ _____

2. to guard _____ _____

3. to spend the night _____ _____

4. building _____ _____ ( )

5. sky _____ _____ ( )

Appendix G
Copy of Vocabulary Quiz - Lesson 18

Latin 8
Quiz 18A

Nomen _____

I. Give the English:

1. Quid agis? _____
2. hi canes _____
3. doleo _____
4. fugio _____
5. revocavit _____
6. se praecipitant _____
7. praecurro _____
8. Mehercule _____
9. pernoctaverunt _____
10. modo _____

II. Give the Latin. Spell correctly.

1. person _____
2. tall _____
3. once _____
4. I recognize _____
5. he appeared _____
6. hand _____
7. fat _____
8. envoy _____
9. unless I am mistaken _____
10. don't _____

III. Answer these questions:

1. What gender is TALL? _____
2. What gender is ENVOY? _____
3. What gender is PERSON? _____
4. What conjugation is PRAECURRO? _____
5. What conjugation is DOLEO? _____

Appendix H
Copy of Vocabulary Quiz - Lesson 19

Latin 8 Nomen _____
Quiz 19A

I. Give the English:

1.intraverunt _____ 6. tibi _____

2. cubitum ire _____ 7. lectus, i _____

3. valde _____ 8. ierunt _____

4. rem explicare _____ 9. ceno, cenare _____

5. sordidus, a, um _____ 10. vigilo, vigilare _____

II. Give the Latin:

1. dinner _____, _____ ( )

2. for Cornelius _____

3. better _____

4. this bed _____

5. he ordered _____

6. he led _____

7. for you (plural !) _____

Appendix I
Copy of Reflective Journal

REFLECTIVE JOURNAL
LESSON ____

PLUS	MINUS	COMMENTS

Appendix J
Copy of Vocabulary Journal Page

On the lines below, fill in the words that you can remember from the last lesson. They must be spelled correctly.

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

How do you think you remembered them? _____

_____

What class activities did you think were most helpful for students in remembering the words?

_____

_____

Appendix K
Copy of Eighth Grade Latin Quiz Survey

EIGHTH GRADE LATIN QUIZ SURVEY

Directions: Last year, every other quiz the class took was a "vocabulary" quiz based on the words of the chapter and their meanings. Reflect back upon your last year's experience as you answer the following questions carefully:

Answer these two questions by checking the best answer:

1. In my vocabulary quizzes, I
   _____usually had A's _____usually had C's
   _____usually had B's _____usually had D's or F's

2. Whenever I had mistakes on my quizzes, it was usually due to:
   _____my not having enough time to study
   _____my inability to memorize
   _____my lack of interest
   _____my spelling
   _____other _____

Answer these questions by using the following format:

5-strongly agree 4-agree 3-can't say 2- disagree 1- strongly disagree

I think I could possibly improve my quiz scores by:

1. spending more time on study at home	5	4	3	2	1
2. studying with a partner	5	4	3	2	1
3. learning more study skills about memorization	5	4	3	2	1
4. doing vocabulary study in more creative ways	5	4	3	2	1
5. having a daily oral vocabulary practice in class	5	4	3	2	1
6. devising games for myself in order to learn vocabulary	5	4	3	2	1
7. taking a more serious attitude toward vocabulary study	5	4	3	2	1